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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,125	02/28/2002	Robert M. Bogursky	2307-057CIP	5029

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EXAMINER

NORRIS, JEREMY C

ART UNIT PAPER NUMBER

2827

DATE MAILED: 12/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/084,125

Applicant(s)

BOGURSKY ET AL.

Examiner

Jeremy C. Norris

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-29 is/are allowed.
- 6) ☒ Claim(s) 1-3,5-7,9-12,17-19,22,24 and 30 is/are rejected.
- 7) ☐ Claim(s) 4,8,13-16,20,21 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

Claims 17-24 are objected to because of the following informalities: In claim 17, line 2 change "postions" to --positions--. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-3, 5-7, 9-12, 17-19, 22, and 24 rejected under 35 U.S.C. 102(e) as being anticipated by US 6,300,678, granted to Suchiro et al. (hereafter Suchiro).

Suchiro discloses, referring to figures 3A-3C, a surface mount contact for attachment to a circuit board, comprising: an elongate electrically conductive pin (31a) defining a shaft having a longitudinal axis and having an upper end and a lower end; a pre-formed heat re-flowable bonding member (W) attached to the lower end of the pin; and an insulator (Rhr) surrounding the shaft of the pin intermediate the upper and lower ends and adjacent the pre-formed heat re-flowable bonding member [claim 1], wherein the pin has a cylindrical crosssection (See col. 4, lines 35-60) [claim 2], wherein the upper end of the pin is formed with a head with an outer surface that is dimensioned to

be positioned on, and bonded to, a conductive pad on a circuit board, and the lower end of the pin is dimensioned and configured to be attached to a lower circuit board (see abstract and figure 11) [claim 3], wherein the pin is provided with a shoulder (31d) for establishing a predetermined vertical position along the longitudinal axis relative to a reference surface [claim 5], wherein the insulator is a collar [claim 6] wherein the pre-formed heat re-flowable bonding member is a solder ball [claim 7], wherein the insulator is made of a high temperature plastic resin or a printed circuit board material (see col. 6, lines 40-45) [claim 9], wherein the insulator collar is press fitted around the pin [claim 10], wherein the pin is of copper or a copper alloy (see col. 4, lines 55-60) [claim 11].

Additionally, Suchiro discloses, referring to figures 3A-3C, a discrete surface mount contact for soldering to a circuit board, comprising: an elongate electrically conductive pin (31a) defining a shaft having a longitudinal axis and having a free upper end and a lower end; a pre-formed heat re-flowable solder ball (W) soldered to and fully surrounding the lower end of the pin; and a discrete insulator (Rhr) surrounding and permanently attached to the shaft of tile pin adjacent the pre-formed solder ball and sealing the shaft against solder migration [claim 12].

Moreover, Suchrio discloses, referring to figures 3A-3C and 11, a circuit board assembly comprising: an upper circuit board (see col. 5, lines 20-30) having contact positions; a plurality (one shown, a plurality referred to, see col. 1, lines 20-25) of discrete electrically conductive pins (31a) each having a shaft with upper and lower ends, the upper ends of each of the pins being attached to the upper circuit board (MB)

at one of its contact positions (CB) and being arranged in a predetermined pattern; a plurality of insulators (Rhr) each surrounding an intermediate position of the shaft of a corresponding pin; a lower circuit board (MCM) opposing and generally parallel with the upper circuit board, the lower circuit board having a plurality of conductive pads (one shown, a plurality referred to, see col. 1, lines 30-35) arranged in the predetermined pattern; and a plurality of conductive joints each formed by re-flow of a pre-formed heat reflowable bonding member attached to the lower end of a corresponding pin, each conductive joint bonding the lower end of a corresponding pin and a corresponding conductive pad and forming an electro-mechanical bond therebetween [claim 17], wherein both the attachments of the pin upper ends and the conductive joints are solder joints, and the solder joints are physically separated from one another by their respective insulator such that the solders at the two joints do not commingle [claim 18], wherein the upper ends of the pins are inserted into corresponding vias in the upper circuit board and each pin has a conductive shoulder positioned between the insulator and the upper circuit board that establishes a predetermined longitudinal position of the pin relative to the upper circuit board [claim 19], wherein the upper end of each pin is formed with a head with an outer surface that is dimensioned to be positioned on, and surface bonded to, a second conductive pad (Pd) on the upper circuit board [claim 22], wherein the pre-formed heat reflowable bonding member is made of a material selected from the group consisting of Tin/Lead solder, Tin/Bismuth solder, conductive epoxy, brazing compound, welding compound and solder paste (see col. 6, lines 25-30) [claim 24].

Claim 30 is rejected under 35 U.S.C. 102(e) as being anticipated by US 6,272,741, granted to Kennedy et al. (hereafter Kennedy).

Kennedy discloses, referring to figures 4 and 5, a circuit board assembly comprising: a generally planar single-sided circuit board (17) having spaced vias (sockets) with at least one of the vias surrounded by an electrically-conductive trace on one of the board's sides; at least one electrically conductive pin (34) having a shaft with upper and lower ends, the upper end of the pin being inserted in and solder bonded to the one via in tile circuit board by a first solder joint that also electrically connects the pin to the trace; a discrete insulator (32) surrounding tile shaft of the pin intermediate its upper and lower ends; a pre-formed heat re-flowable soldering member (38) located on the side of the insulator adjacent the lower pin end and soldered to and fully surrounding the lower end of tile pin; the discrete insulator sealing to the shaft and preventing, solder migration between the first solder joint and the re-flowable soldering member [claim 30].

***Allowable Subject Matter***

Claims 25-29 are allowed.

Claims 4, 8, 13-16, 20, 21 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 4, states the limitation "wherein the head is formed with at least one channel that opens through an outer surface of the head and a peripheral wall of the head". This

limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim 8 states the limitation "wherein the insulator has a conductive pad formed on an upper surface thereof surrounding the shaft of the pin adjacent the preformed heat re-flowable bonding member". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. claim 13 states the limitation "further comprising a discrete conductive collar mounted on and surrounding the shaft of the pin intermediate the insulator and upper end of the pin". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim 20 states the limitation "wherein each insulator is formed with a second conductive pad that is bonded by a corresponding second solder joint to a corresponding second conductive pad on the upper circuit board". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim 21 states the limitation "wherein a first melting temperature of the solder in the solder joints of the pins to the contact position is above a second melting temperature of the solder in the solder joints that bond the lower ends of the pins to the conductive pads on the lower circuit board". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim 23 states the limitation "wherein the head is formed with at least one channel that opens through the outer surface of the head and a peripheral wall of the head". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art. Claim

25 states the limitation "a plurality of discrete insulators each surrounding the shaft of a corresponding pin". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art.

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

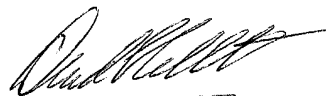
US 5,145,104      Apap et al.,

US 5,338,208      Bross et al..

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 703-306-5737. The examiner can normally be reached on Mon.-Th., 9AM - 6:30 PM and alt. Fri. 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on 703-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-0725 for regular communications and 703-308-0725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

  
DAVID L. TALBOTT  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

JCSN  
December 14, 2002